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ABSTRACT

This report offers comprehensive information about the current capabilities of statewide higher education student data systems including the scope of these systems, what information is collected, and how information is used. The report provides analysis of student tracking systems and data sharing across agencies. It addresses protection of the confidentiality of student records and how current and future technological advances affect higher education data systems. Information was gathered from a 1995 survey of members of the Higher Education Executive Officers Association. Findings indicated that comprehensive statewide databases were found in 32 states, non-comprehensive databases were found in 5 states, and 9 states had no multi-institutional databases in existence. Data collected usually focused on enrollment and completion information; student course data was also commonly collected. Respondents expressed some concerns about confidentiality, but generally saw the benefits of statewide information sources as overcoming confidentiality concerns. Statewide database systems were seen as reducing the reporting burden on institutions, improving policy decisions, and providing more data for institutional planning. Personnel data systems are also briefly discussed. Appendixes include a copy of the survey instrument, state-by-state tables, and a list of data system contacts. (Author/NAV)

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Advances in Statewide Higher Education Data Systems

Alene Bycer Russell

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Advances in Statewide Higher Education Data Systems

Alene Bycer Russell

October 1995

SHEEO STATE HIGHER EDUCATION EXECUTIVE OFFICERS

707 Seventeenth Street, Suite 2700, Denver, Colorado 80202-3427, 303-299-3686

Alene Bycer Russell is a research associate for the SHEEO/NCES Communication Network, a project of the State Higher Education Executive Officers.

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The State Higher Education Executive Officers is a nonprofit, nationwide association of the chief executive officers serving statewide coordinating boards and governing boards of postsecondary education. Forty-nine states, the District of Columbia and Puerto Rico are members.

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Preface

Since their inception, state-level coordinating and governing boards have been collecting and reporting higher education data. At one time, most collected only aggregate data from institutions in their states—information that might have taken institutional staff hours, days, or even weeks to compile. However, advances in computer technology over the past two decades dramatically changed the nature of institutional data systems, and in turn, of state data systems. Currently, 41 states have some degree of statewide or systemwide database capabilities, meaning that information from multiple institutions can be generated in a matter of minutes. These databases greatly reduce the reporting burden on colleges and universities, produce more consistent and comparable state data, and, most significantly, allow students to be tracked across institutions and sectors. Indeed, in an era of declining resources and increased accountability demands, statewide data systems allow coordinating and governing boards to address complex policy questions with increasing skill and efficiency.

The State Higher Education Executive Officers (SHEEO), a membership organization of statewide higher education agencies, provides a mechanism for communication and coordination among these agencies. One of its objectives is to conduct studies and projects that advance statewide planning and coordination, and among the ways that SHEEO fulfills this objective is through policy reports such as this one.

Advances in Statewide Higher Education Data Systems, authored by Alene Bycer Russell, offers comprehensive information about the current capabilities of statewide student data systems including the scope of these systems, what information is collected, and how information is used. The report provides thoughtful analysis of student tracking systems and data sharing across agencies. It addresses the subjects of protecting the confidentiality of student records and of how current and future technological advances affect higher education data systems. In addition, a brief section of this report is devoted to personnel data systems.

This report is recommended to federal and state policymakers, college and university administrators, and other education leaders and researchers who collect and use higher education data.

Esther M. Rodriguez
Associate Executive Director
SHEEO

Advances in Statewide Higher Education Data Systems

Introduction

Across all levels of administrators and policymakers, the need for information about higher education has never been greater. At the institutional level, faced with shrinking resources and growing demands, administrators require clear, complete, and often comparative data on which to base critical management decisions. At the state level, concerns about increasing tuition rates, quality of programs, meeting the needs of new kinds of students, and future economic prospects are widespread; these issues are leading policymakers to impose new kinds of accountability measures and to make explicit demands for better indicators of how higher education is performing. Similarly, at the national level, new laws passed over the past several years require postsecondary institutions to report more data and new kinds of data, among them, longitudinal or "student flow" measures.

Over past decades, institutional data systems have been developed to address many of these kinds of issues. Using their own data systems, institutional research staff have analyzed data, written reports, and responded to internal and external demands. But there are limits to the kinds of questions these operational systems can answer. To begin with, many questions raised by state and national policymakers require greater consistency in definition and comprehensiveness in scope than is possible to obtain from institutional data analysts working in isolation. Moreover, many complex policy issues simply demand more coordinated analysis; this includes questions about inter-institutional transfer, occupational placement, and inter-state migration. Over past decades, statewide higher education agencies and the federal government have assumed a much greater role in the area of data production, resulting in better state and national information on higher education.

Specifically, one of the early functions of newly-forming state-level coordinating and governing boards in the 1950s, 1960s and 1970s was the collection, synthesizing, and reporting of data from institutions — data on enrollments, revenues and expenditures, facilities, faculty, and staff. These State Higher Education Executive Officers organizations, or "SHEEO" agencies, worked to establish common definitions and reporting formats, gathered aggregate data from their institutions, and were able to produce statistics that were more meaningful and consistent across institutions within the state. These state efforts coincided with similar federal government efforts such as the HEGIS and later IPEDS surveys, which addressed definitions and formats at the federal level, improving the consistency and comprehensiveness of national data.[1] To illustrate how closely tied these federal and state actions were, many SHEEO agencies assumed the role of "IPEDS coordinator;" instead of institutions sending reports directly to the federal government, an intermediary role emerged in which state agencies gathered aggregate data or reports from the institutions in the state, processed them to varying degrees, and submitted them to the federal government. In the process, state agencies obtained reliable data to work with, and national statistics assumed greater consistency and comprehensiveness.

As demands for more complex kinds of analysis grew, and in part a reflection of advances in computer technology, many SHEEO agencies took the next logical step in the 1980s and began to develop their own statewide student and personnel databases. These databases afforded state agencies much greater flexibility and analytic capacity; they also provided comparative and comparable information back to institutions efficiently. More

[1] HEGIS, the Higher Education General Information Survey, collected data from colleges and universities from 1965-1986. In 1986 it was replaced by IPEDS, the Integrated Postsecondary Education Data System, and the universe was expanded to include many additional providers of postsecondary education and training.

recently, in the 1990s, demands for new kinds of data — particularly longitudinal student tracking data — are pushing states to develop new kinds of system capacities.

Clearly, progress in statewide data system development has been tremendous in recent decades, but the story is far from complete. Different stages of development are evident among the fifty states, and changes are occurring continuously. In this context, the State Higher Education Executive Officers (SHEEO) Association conducted a survey of its members in February and March 1995 to assess what is happening nationally in terms of statewide higher education data system capabilities. The survey focused on statewide "unit record systems" — computer systems in which individual records from different institutions reside in a central location; the survey did not address collection or use of aggregate data. If the SHEEO agency did not have a statewide database, supplemental information was gathered from significant multi-institutional system offices in the state. The summary information contained in this report should be of interest to SHEEO members and to the wider higher education community. It will inform agencies about what their peers are doing across the country and enable national organizations to better understand and support state efforts.

This report focuses on statewide student data systems, looking at (1) the current scope of statewide student unit record data systems, (2) their characteristics and capabilities, (3) the uses of these databases and concerns about confidentiality, and (4) technological changes and plans for the future. At the end of the report, a short description of statewide personnel data systems is provided. Appendices to the report include a copy of the survey instrument, state-by-state tables, and a list of data system contacts.

The current scope of statewide student data systems

As Table 1 indicates, multi-institutional student databases currently exist, to one degree or another, in 41 states. This means that "unit record" data on individual students from more than one institution are combined in a database that resides somewhere in the state, most often at the SHEEO agency. Of these, 32 states have a comprehensive statewide student database at the SHEEO level, containing records from four-year and two-year public institutions; six of these databases also contain data from at least some independent, non-profit colleges, and three of the databases contain data from at least some proprietary schools. Another five SHEEO agencies maintain statewide databases, but these are less comprehensive than those mentioned above; for example, three of these databases contain four-year institutional data only. In two other states, significant multi-institutional databases do exist, but these are maintained at the system level, not by the SHEEO agency. In one of the cases, Florida, several separate databases are linked; in effect, this functions as a comprehensive statewide database even though the SHEEO agency is not the "owner." In the other case, New York, two separate large system databases exist but are not linked. In two additional states, very limited multi-institutional databases exist. Finally, nine states currently have no multi-institutional databases, although in at least two of them, there is some discussion about future development in this area.[2]

[2] For the remainder of this report, all state data systems are analyzed as equal units, even though they vary in comprehensiveness. Thus, information about data systems in Mississippi, Oregon, and South Dakota, representing the four-year sector only, is treated exactly like information from more comprehensive data systems. Similarly, information from three other states, representing a single multi-institutional system and not the entire state, also is treated this way: data from the State System of Higher Education represent Pennsylvania, from the Vermont State Colleges represent Vermont, and from SUNY represent New York State. Because the multi-institutional systems in Arizona are just under development, no detailed information is available from this state.

Table 1

Current Status of Statewide Student Unit Record Databases

Comprehensive statewide database exists at the SHEEO level, containing student records from four-year and two-year public institutions (N=32)

Alaska	Louisiana	North Dakota
Arkansas	Maine	Ohio
California	Maryland	Oklahoma[1,2]
Colorado[1]	Massachusetts	South Carolina
Connecticut	Minnesota[1,2]	Tennessee
Georgia	Missouri	Texas
Hawaii	Nevada	Utah
Idaho	New Hampshire	Virginia[1,2]
Illinois	New Jersey	West Virginia
Indiana[1]	New Mexico	Wisconsin
Kentucky[1]	North Carolina	

Statewide database exists at the SHEEO level, but it is not comprehensive (N=5)

Mississippi[3]	Vermont[4]
Oregon[3]	Washington[5]
South Dakota[3]	

Significant multi-institutional databases exist, but not at the SHEEO level (N=2)

Florida[6]
New York[7]

More limited multi-institutional databases exist (N=2)

Arizona[8]
Pennsylvania[9]

No multi-institutional databases exist (N=9)

Alabama	Kansas	Nebraska
Delaware	Michigan	Rhode Island
Iowa	Montana	Wyoming

1 Also contains student records from at least some independent, non-profit colleges.
2 Also contains student records from at least some proprietary schools.
3 Contains four-year institutional data only.
4 Separate databases exist for the University of Vermont and the Vermont State Colleges System; this survey collected information from the Vermont State Colleges only.
5 Limited unit record enrollment data exist, but more complete records on financial aid recipients are collected; extensive tracking capabilities exist across state agencies.
6 Although no database resides at the Postsecondary Education Planning Commission, separate databases exist for the State University System, the State Board of Community Colleges, and the Florida Education and Training Placement Information Program. These databases are linked and students can be tracked across systems.
7 Separate databases exist for SUNY and CUNY; this survey collected data from SUNY only.
8 Limited multi-institutional files are under development, separately for three four-year institutions and for community colleges. No detailed system-level data were collected for this survey.
9 A database exists for the State System of Higher Education, but is not linked to other institutional data. This survey collected information pertaining to this system only.

Many of the questions that have driven database development are primarily addressed by data on undergraduate students. However, still other questions pertain to graduate and professional programs found in the states. Survey findings show that the vast majority of statewide student data systems contain data on graduate students as well as undergraduates, although the types of data collected may not be as extensive.

In a few cases, these databases have been around for a long time. For example, Ohio developed its Uniform Information System in the mid-1960s, and has student enrollment data available back to 1967. By 1980, nine other states set up statewide student data systems. There has been continual and rapid expansion over the 1980s and 1990s, with much of the growth occurring in the mid-1980s.

Once established, these data systems have not been static. Over time, statewide databases have become more inclusive in terms of the number of institutions and sectors included, resulting in the striking profile found in Table 1. The frequency of data collection has typcially increased as well. Most often, states began by collecting fall term data only. Currently, however, over half of the statewide databases (25) contain data from all terms.

Finally, it is interesting to explore the ways SHEEO agencies receive or access unit record data from institutions. Clearly, agencies have multiple ways of obtaining/accessing data, and this is another area that has changed over time. In earlier years, tape and diskette were the primary means of data transfer from institutions to SHEEO agencies, but electronic file transfer and remote access to databases over the Internet have been growing in frequency and promise to be even more widespread in the future. Table 2 indicates that electronic transmission of data is currently the most often used method, but diskette and tape transmission are still quite common. Only five states have remote access to data, meaning

that they do not necessarily transfer data to their physical location or "own" the data; they may access data at a remote location over the Internet.

Table 2

How Student Data Files Are Received/Accessed From Campuses	
	Number of States
Electronic file transfer	30
Tape	27
Diskette	21
Remote Access	5
Other	9

Note: Many state agencies use multiple ways of receiving/accessing data from institutions.

Description and capabilities

Just as statewide data systems have grown in other ways, there has been a phasing in of new types of data over the years. Historically, enrollment and course data were the first to be gathered in statewide systems, and other kinds were collected later. Table 3 summarizes the types of student data currently residing in statewide student databases. Clearly, student enrollment data is universally collected, providing information for enrollment reports as well as the building blocks for many other kinds of studies. Information on completions also is collected in most (35) statewide databases, as it is needed for student tracking and analysis of types of degrees granted. Next most frequently collected (23 states) is student course data which permits the analysis of many academic questions including use and success of remedial courses. Financial aid data, found in 22 state databases, enables the study of patterns of state and federal financial aid and is used to address questions of access to higher education. Fifteen states collect applicant data, providing information on the admissions process and

admissions standards. Fifteen states also collect assessment and performance data; these are quite varied, ranging from statewide basic skills test data, a rising junior exam, ACT student opinion data, enrollment status, and GPA. Data on student outcomes after college are least often collected (nine states) and typically include information from alumni follow-up surveys; increasingly, these data are resulting from data sharing with other organizations.[3]

Table 3

Types of Statewide Student Databases	
	Number of States
Enrollment	41
Completions	35
Student courses	23
Financial aid	22
Applicants for admission	15
Assessment/performance	15
Student outcomes after college	9

Certain data elements are key to statewide data systems in that they help to shape the kinds of analyses that can be conducted. Table 4 indicates the number of states collecting some of these data elements, revealing that there is much variability among states. For example, nearly all states with statewide databases (39) can distinguish freshmen from transfer students, but just over half the states having statewide databases (21) would be able to distinguish between students admitted conditionally as compared to students meeting normal admissions requirements. Only nine states can identify which students receive athletically-related student aid. Concerning academic data, 27 states collect cumulative GPA

[3] Table B-1 in Appendix B contains state-by-state detail on types of statewide databases.

Table 4

Availability of Key Data Elements	
	Number of States
Student classifications: Entering type (freshman/transfer)	39
Degree seeking/non-degree seeking	30
Degree intended	29
Admission status (regular/provisional)	21
Athletic status	9
Academic data: Cumulative GPA	27
Remedial coursework	26
Student course grades	14
Transfer student data: Transfer level ("lower" vs. "upper" or year)	29
Total number of credits earned at prior institutions	25
Number of credits applicable to the degree	15
Student outcomes: Post-baccalaureate enrollment in graduate/first professional program	21
Student satisfaction	7
Licensure/certification	4
Employment/job placement	4

while only 14 collect student course grades. Turning to transfer students, it is more common to collect transfer level (29 states) than actual number of credits applicable to the degree (15 states). Finally, the only student outcome measure available to a large number of states is post-baccalaureate educational enrollment (21 states), data that can be obtained from the same

statewide database; information on outcomes requiring additional data collection or data sharing with other agenices are infrequent. In each case, what is collected and how it is collected — or, conversely, what is not collected — would determine and limit the kinds of reports that can be produced directly from statewide data systems.[4]

Despite long-standing concerns about compromising student confidentiality, nearly every state now uses the social security number as the student identifier. In just a few cases some institutional discretion still exists on this matter, but the trend is clearly toward using the social security number to identify student records. The use of this unique identifier gives agencies the capability of linking student records over time and across institutional and organizational boundaries, permitting the tracking of student progress.

Indeed, the full potential of statewide databases is not realized until student tracking capabilities are developed. Led by state interests in better understanding student retention in the mid to late 1980s, and encouraged by such federal legislation as the Student Right-to-Know and Campus Security Act of 1990, many states took the next step in the evolutionary process of database development in the early 1990s. Building on existing term-by-term student databases, many states went one step further and began to track the academic progress of individual students. The tracking of entering freshmen is now possible in 35 states, and five other states with multi-institutional databases are now working on developing this capacity.

There are two major advantages of such statewide tracking systems over institutional tracking systems. First, state tracking systems are more efficient; instead of every institution in a state developing its own tracking system, information can be analyzed centrally and

[4] Table B-2 in Appendix B contains state-by-state detail on data element availability.

provided back to institutions. Second, and most importantly, these systems allow tracking across institutions, providing more complete information on student outcomes, i.e., which students actually "drop out," which students transfer and later graduate, and so on.

Clearly, where statewide databases exist, the desire to track students across institutions is strong; where such multi-institutional databases do not exist, the desire to track students has been a primary impetus for many states to develop a statewide database. Progress in student tracking has been steady. When SHEEO last surveyed state agencies in 1991, only 12 states were using a student unit record database to report graduation and completion rates, and another 12 were in the middle of planning or developing this capability. Now, less than four years later, 35 states use such databases. Moreover, student tracking has become more diverse and extensive. Tracking transfer students, a relatively new concept, is now possible in 34 states, and five additional states intend to develop this capacity. Thirty states can now track students that begin in terms other than fall term, and five expect to develop this capacity.[5]

Uses of statewide data systems and confidentiality concerns

The uses of statewide student databases are many and varied, and Table 5 summarizes 12 common uses, in order of frequency mentioned by survey respondents. Some uses, such as IPEDS reporting (24 states), reflect traditional roles and capacities of SHEEO agencies and do not require student tracking systems. (This number, of course, does not represent the sum total of IPEDS reporting done by SHEEO agencies; as discussed earlier, many agencies,

[5] Table B-3 in Appendix B contains state-by-state detail on current and future student tracking capabilities.

Table 5

Uses of Statewide Student Databases	
	Number of States
Persistence/completion/time to degree studies	33
Student transfer studies	32
Studies of minority students	32
Enrollment projections	25
IPEDS reporting (fall enrollment & completions)	24
K-12 feedback reports	23
Remedial education studies	22
"Report card"/accountability reporting	21
Student Right-to-Know Reporting (intended use)	20
Financial aid studies	18
Studies of admissions standards	17
Vocational-technical reporting	11

especially those in which comprehensive statewide databases do not exist, continue to use aggregate rather than unit record data for this purpose.) However, the three most common uses of statewide student databases — persistence/completion/time-to-degree studies (33 states), student transfer studies (32 states), and studies of minority students (32 states) — illustrate the value of multi-institutional student tracking capabilities. Without the ability to track students across institutions centrally and efficiently, it is virtually impossible to imagine how comparable information could be generated. Other uses by state agencies are quite widespread as well, including producing enrollment projections at the state level (25 states), providing feedback information to high schools (23 states), studying the scope and effectiveness of remedial programs (22 states), accountability reporting (21 states), and others.

These databases allow statewide policy questions to be addressed in a way that institutional data systems do not allow.

Although student tracking is a primary purpose of these data systems, student tracking from the freshman year through college departure addresses only part of the picture of student postsecondary careers. Many statewide data systems are now beginning to address other important policy issues such as what happened before the student entered college, and what happens after he/she leaves. One new and rapidly growing occurrence is the development of linkages between state higher education databases and other state, federal and private agencies and organizations. Table 6 summarizes the states currently engaged in this type of activity. Because this is such a new area of development, this table includes both states in which data sharing arrangements are already in place as well as those exploring such possibililties. Combining both categories, it is apparent that data sharing with the K-12 sector (20 states) and with state employment agencies (20 states) are the most common.[6]

One of the recurring concerns in student tracking across agencies is confidentiality of student records, and agencies demonstrate a variety of responses pertaining to confidentiality issues. Many states are attempting to follow guidelines from the Family Educational Rights and Privacy Act (FERPA), and some have additional state policies in place. For example, agencies will provide records with social security numbers attached only when confidentiality is guaranteed and necessary for the analysis, and/or they have pre-defined lists of possible users. Other states will provide unit record data, but scramble the student identifier so that individual students cannot be identified. Some states do not have clear or written policies, but review requests for data sharing on a case-by-case basis. Some provide a data-sharing

[6] Table B-4 contains state-by-state detail on inter-agency data sharing, including current capabilities and discussion/planning in this area.

Table 6

Inter-Agency Data Sharing		
Type of Agency	Data Sharing Arrangements Currently in Place (Number of States)	Data Sharing Arrangements in the Discussion/Planning Stage (Number of States)
State department of education (K-12)	10	10
State employment records	11	9
Postsecondary agencies in other states	3	6
Federal training/employment records	3	4
The military	5	2
State corrections	3	3
Private sector employers	2	3

agreement form. Still other states are beginning to experiment with "informed consent" procedures in which they ask student permission in advance to share data with other agencies. Finally, for some states, it is not an issue; they simply will not share data. As inter-agency data sharing arrangements multiply, it is evident that these issues will need additional resolution.

Despite these concerns, states are very interested in expanding tracking across new boundaries. An impressive 33 states expressed interest in developing new data sharing arrangements with postsecondary agencies in other states, and four others replied with a more cautious "maybe." Most of these are willing to share unit-record data, motivated by the need to acquire better understanding of inter-state student migration patterns — to know more about what happens to high school students who leave the state, to better estimate graduation rates, and to track employment and postgraduate education of college graduates. But again,

much caution is expressed in terms of possible violation of confidentiality of student records, and a few states are willing to share aggregate information only.

Technological changes and plans for the future

Technological changes have been tremendous in recent decades, providing powerful forces to stimulate data system development at the state level. Indeed, the sweeping promises of technology have gradually reduced institutional resistance to multi-institutional databases, further encouraging the development of these systems. Changes in recent years include all of the following:

- the shift from large, mainframe computers to personal computers and Local Area Networks
- reduced dependence on cumbersome programming languages and operating systems; shift to simpler operating systems, such as UNIX
- relational databases replacing flat file structures
- faster PCs with greater memory, and use of CD-ROM
- the development of new PC-based software, including client server products and decision support software
- the shift from physical forms of data transfer (tapes and diskettes) to electronic data transfer; use of the Internet and File Transfer Protocol (FTP) to transfer both student unit-record data and aggregate data and reports
- increasing use of such electronic enhancements as Mosaic, Gopher, and World Wide Web.

Though most agencies have not advanced to state-of-the-art systems in all of these areas, the progress that has taken place is considerable. Many agencies reported simplifed in-house processing and increased analytic capacity, reduced processing time for data requests, lowered costs for many kinds of analyses, increased speed and reduced costs of data transfer

between institutions and state agencies, and more sharing of ideas and statistical reports with institutions and others outside the agency.

These technological changes are pervasive and ongoing. Currently, 33 states have a plan in place for information system development for the next few years, typically addressing some or all of the areas listed above. In particular, expanded Internet access and increased electronic communication between state agencies and institutions are high priorities. Indeed, every day state agencies are moving closer to a vision in which each staff member has a multi-purpose work station, with access to wordprocessing, spreadsheets, e-mail, mainframe computers, and analysis packages. Many kinds of information — student unit record data, aggregate data, tables, reports, and national data sets — are becoming accessible to a wide audience of users.

Personnel data systems

In addition to obtaining extensive information about statewide student unit record data systems, the SHEEO survey obtained more limited information about statewide personnel data systems. Twenty-four respondents indicated that their agencies have access to personnel unit record data, somewhat fewer than the 41 states which have access to student unit record data. Typically, these databases may be described as personnel/payroll databases. All of these systems (24) contain records on faculty members, and most of them (19) contain records on administrative staff. A large number (18) include teaching assistants, but fewer than half (11) contain information on student employees. As personnel/payroll databases, these systems have a fluid character and are often updated on a continuing or frequent basis as changes occur; this contrasts with student databases which are typically updated by term. In addition to standard personnel/payroll information, many of these systems have additional unit record

data on faculty. For example, 17 states indicated unit record data on faculty workload are available to them.

Where such databases exist, affirmative action reporting is a nearly universal use of personnel databases, as Table 7 indicates. Faculty or staff salary studies is the next most common use, followed by faculty workload studies and IPEDS reporting. If these numbers seem low by comparison to Table 5 describing uses of student databases, it must be remembered that they reflect uses of personnel *unit record data* only. Many other SHEEO agencies engage in these same kinds of studies, collecting aggregate data from institutions and preparing statewide reports. Very few states indicated that they have plans to make major enhancements to their personnel data systems, and there does not seem to be the same urgency or momentum in developing these databases as there is with statewide student databases.

Table 7

Uses of Statewide Personnel Databases (In Order of Frequency Cited)	
	Number of States
affirmative action studies	22
faculty or staff salary studies	18
faculty workload studies	14
IPEDS fall staff survey	13
IPEDS salaries survey	12

Conclusion

The role of institutional cooperation and support cannot be underestimated as the story of statewide database development is told. Already, statewide student unit record databases are bringing very concrete benefits to institutions, and knowledge of accomplishments in

some states has stimulated interest and ongoing improvements in others. First, whereas institutions previously exhausted countless hours and dollars producing numerous and duplicative data reports, now statewide data systems can produce much of the needed information directly from institutional data. Thus, the reporting burden on institutions is greatly reduced. Second, more data are made available to institutions, in particular, comparative data from other institutions, and state averages. These data are particularly valuable to smaller institutions with more limited resources. Finally, for the first time, important policy questions related to student movement across institutions, sectors, organizations, and even states can be addressed with comprehensive data. In other words, statewide databases are providing information that institutions themselves are not in a position to create. Some state agencies also are providing needed information tools such as decision support software to assist institutional decision-making. In sum, institutional capacity to respond quickly to many kinds of information needs and requests is greatly enhanced.

Concerns about confidentiality of student data, once a major obstacle to the development of multi-institutional databases, are clearly still around, but given the tremendous benefits, there seems to be a greater comfort level — and even a modest enthusiasm — to embrace more open data systems. Particularly with the advent of the Internet, the benefits of statewide data systems that are widely accessible are becoming apparent, and there is a trend toward making more data available to more people. Safeguards are being taken, of course, but institutions and state agencies seem to be finding new ways of dealing with these concerns. Indeed, significant progress has been made, but as even more extensive data sharing arrangements arise, it is evident that more standardization of procedures is needed.

The critical issues of our times will continue to demand better information about our institutions of higher education. Many of these issues, especially those pertaining to how

students progress through school and through the workplace, require information that goes beyond the capabilities of individual institutions. And as traditional patterns of college attendance further give way to non-traditional patterns, student tracking questions become even more complex, demanding new linkages across postsecondary institutions and other parts of our society. In the past couple of decades, tremendous progress has been made in many states to establish the capacity for multi-institutional tracking. The benefits of this progress — for institutions, state agencies, and even national concerns — are only beginning to be realized. We can expect the value of statewide higher education data systems to increase in the future as the need for answers to ever more complicated questions arises.

Appendix A

Survey Instrument

State Higher Education Executive Officers
Survey on Statewide/Systemwide Data System Capabilities
February, 1995

Introduction. This survey collects basic descriptive information on statewide/systemwide data systems, including student and personnel data. Five key areas are addressed:

I. Access to unit record databases
II. Capabilities of unit record databases
III. Uses of unit record databases
IV. Electronic resources
V. Future needs

When responding to this questionnaire, please consider your agency's work as a whole, and do not limit your answers to the work that you personally perform. Feel free to add comments in the margins that explain or expand upon your answers and to submit copies of any pertinent documents.

Note: if your agency does not currently have access to unit record data but is planning or developing such access for the future, please answer Sections I-III to the best of your ability.

If you do not have access to any unit record databases and do not anticipate such access in the future, please skip to page 6 and complete Sections IV-V only. If other higher education agencies in your state have unit record databases, please list them here so that we may contact them for more information.

Thank you for your assistance. Please mail the completed questionnaire by March 3 to:

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SHEEO
707 Seventeenth Street, Suite 2700
Denver, Colorado 80202-3427
303-299-3671

Respondent Information Section

State/Agency:_____

Respondent:_____

Title:_____

Telephone:_____ Date:_____

Section I. Access to unit record databases

1. For each database listed below, please indicate the earliest year for which unit record data are or will be available to you, the frequency of data collection, the sectors included, and whether social security numbers are used as the personal identifier. If you do not have access to a particular database, enter NA in the "Year" column. If the database does not reside at your agency, please explain below under "Comments."

Database	Year *(Indicate earliest year for which data are/will be available to you.)*	Frequency of Data Collection *(Indicate if fall only, all terms, once a year, or other.)*	Sectors Included *(Circle all that apply.)*				Social Security Number	
			Public		Independent Non-profit	Proprietary	Yes	No
			4-year	2-year				
student enrollment			1	2	3	4	Y	N
applicants for admission			1	2	3	4	Y	N
student financial aid			1	2	3	4	Y	N
completions			1	2	3	4	Y	N
student courses			1	2	3	4	Y	N
assessment/performance *(describe)*			1	2	3	4	Y	N
student outcomes after college			1	2	3	4	Y	N
personnel			1	2	3	4	Y	N

Comments:

2. How do you receive/access unit record files from campuses? *Check all that apply.*

____ tape
____ diskette
____ electronic file transfer
____ remote access to a file server
____ other *(explain)*

Section II. Capabilities of unit record databases

3. Which of your student databases include graduate and professional students?

4. What types of employees are included in your personnel databases (e.g. faculty, administrators, teaching assistants, student employees, others)?

5. Which of the following data elements are available to you in unit record form?

Data Element	Availability	
	Yes	No
entering type (freshman/transfer)	Y	N
admission status (regular/provisional)	Y	N
degree seeking/non-degree seeking	Y	N
degree intended	Y	N
athletic status	Y	N
remedial coursework	Y	N
student course grades	Y	N
cumulative GPA	Y	N
For transfer students: total number of credits earned at prior institutions	Y	N
number of credits applicable to the degree	Y	N
transfer level ("lower" vs. "upper" or year)	Y	N
Student outcomes: employment/job placement	Y	N
post-baccalaureate enrollment in graduate/first professional program	Y	N
licensure/certification	Y	N
student satisfaction	Y	N
faculty workload	Y	N

6. To what extent has your agency developed its student tracking capabilities? For each item below, please indicate whether you currently have this capability, will have this capability, or do not/will not have this capability, and the earliest cohort you can/will be able to track.

	Capability			Earliest cohort that can/will be tracked
	Currently have this capability	Will have this capability	Do not/will not have this capability	
track entering freshmen	1	2	3	
track incoming transfer students	1	2	3	
track students who begin in terms other than fall term	1	2	3	

7. How does your agency deal with issues of confidentiality concerning sharing unit record data among agencies? What policies exist and what questions remain?

8. *If your agency is not involved in sharing unit record data with other agencies, please skip to question 9.*

We would like to gather information on data sharing arrangements using unit record databases. For each item below please indicate whether you: (1) are in the discussion/planning stage; (2) are currently implementing data sharing or already have such arrangements in place; or (3) are not involved in sharing this type of data.

	Discussion/ Planning Stage	Currently Implementing/Have Arrangements in Place	Not Involved in Sharing This Type of Data
other postsecondary agencies in your state *(specify)*	1	2	3
postsecondary agencies in other states *(specify)*	1	2	3
state department of education (K-12)	1	2	3
state employment records	1	2	3
state corrections	1	2	3
federal training/employment records	1	2	3
the military	1	2	3
private sector employers	1	2	3
other *(describe)*	1	2	3

Section III. Uses of unit record databases

9. Below is a list of reports that SHEEO agencies commonly produce for federal and state purposes. For many years, agencies used aggregate data to prepare these reports, but increasingly, they are using unit record databases.

   Please indicate whether your agency uses a unit record database to prepare each type of report listed below. Your responses should include all unit record databases, including both comprehensive databases and special databases created for *ad hoc* purposes.

	Yes (We use a unit record database to prepare this report.)	**No (We do not use a unit record database or do not prepare this report.)**
Federal purposes: IPEDS fall enrollment surveys	Y	N
IPEDS completions survey	Y	N
IPEDS salaries survey	Y	N
IPEDS fall staff survey	Y	N
Student Right-to-Know (future use)	Y	N
vocational-technical reporting (e.g. Perkins Act)	Y	N
State/system purposes: "report card"/accountability reporting	Y	N
program or institutional review	Y	N
faculty or staff salary studies	Y	N
faculty workload studies	Y	N
affirmative action studies	Y	N
resource allocation	Y	N
facilities studies	Y	N
financial aid studies	Y	N
persistence/completion/time to degree studies	Y	N
studies of minority students	Y	N
student transfer studies	Y	N
enrollment projections	Y	N
studies of admissions standards	Y	N
remedial education studies	Y	N
K-12 feedback reports	Y	N
Other *(specify)*	Y	N

Section IV. Electronic Resources

10. Please describe any ways in which new electronic resources are enhancing your data system capabilities.

Section V. Future needs

11. Does your agency have a plan for information system development for the next few years?

    ____ yes ____ no

    If yes, please describe the components of this plan. If no, please describe any specific data system enhancements that you will need in the next five years.

12. Are you interested in developing new sharing data arrangements with postsecondary agencies in other states?

    ____ yes ____ no

    If you have a particular area of interest, please describe.

13. How might SHEEO or the SHEEO/NCES Communication Network help you meet future data needs?

Appendix B

State-by-State Tables

Table B-1
Types of Statewide Databases
(Question 1)

	Student							Personnel
	Enroll-ment	Applicants for Admission	Financial Aid	Comple-tions	Student Courses	Assess-ment/ Perfor-mance	Student Outcomes After College	
Alaska	X	X		X	X			X
Arizona	X	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Arkansas	X			X	X	X		X
California	X			X				
Colorado	X	X	X	X				
Connecticut	X				X			
Florida	X	X	X	X	X	X	X	X
Georgia	X			X				X
Hawaii	X	X	X	X	X	X	X	X
Idaho	X		X	X		X		
Illinois	X			X			X	
Indiana	X		X	X				
Kentucky	X			X	X			
Louisiana	X			X	X			
Maine	X	X	X	X	X	X		X
Maryland	X			X		X	X	X
Massachusetts	X	X						
Minnesota	X			X				
Mississippi	X		X	X	X	X		X
Missouri	X		X	X			X	
Nevada	X	X	X	X	X			
New Hampshire	X		X	X				X
New Jersey	X		X	X		X		
New Mexico	X			X	X			X
New York	X	X	X	X	X	X	X	X
North Carolina	X	X		X		X	X	X

Table B-1
Types of Statewide Databases
(Continued)

	Student							Personnel
	Enroll-ment	Applicants for Admission	Financial Aid	Comple-tions	Student Courses	Assess-ment/ Perfor-mance	Student Outcomes After College	
North Dakota	X			X	X		X	X
Ohio	X		X		X			X
Oklahoma	X	X	X	X	X	X	X	X
Oregon	X			X	X			X
Pennsylvania	X			X				X
South Carolina	X			X				
South Dakota	X	X	X	X	X			X
Tennessee	X			X	X	X	X	X
Texas	X		X	X		X		X
Utah	X				X			
Vermont	X	X	X	X	X			X
Virginia	X	X	X	X	X	X		X
Washington	X	X	X					
West Virginia	X		X	X	X	X		X
Wisconsin	X	X	X	X	X			X

Table B-2
Data Element Availability
(Question 5)

	Entering Type	Admis-sion Status	Degree Seeking/ Non-Degree Seeking	Degree Intended	Athletic Status	Remedial Course-work	Student Course Grades	Cumulative GPA
Alaska	X	X	X	X	X	X	X	X
Arizona	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Arkansas	X		X	X	X	X		
California	X		X					
Colorado	X		X	X				X
Connecticut	X		X	X				
Florida	X	X	X	X		X	X	X
Georgia	X	X						X
Hawaii	X	X	X	X		X	X	X
Idaho	X	X	X		X	X	X	X
Illinois	X							
Indiana	X			X				X
Kentucky	X		X	X		X		
Louisiana	X	X	X	X				
Maine	X	X	X	X			X	X
Maryland	X	X	X	X		X	X	X
Massachusetts	X	X	X	X		X		X
Minnesota	X		X	X		X		
Mississippi	X	X		X		X		X
Missouri	X		X					X
Nevada	X	X	X	X	X	X	X	X
New Hampshire	X			X	X			X
New Jersey	X	X	X	X				X
New Mexico	X		X			X		

Table B-2
Data Element Availability
(Question 5)

Transfer Students			Student Outcomes					
Total # of Credits Earned at Prior Institutions	# of Credits Applicable to the Degree	Transfer Level	Employment/Job Placement	Post-baccalaureate Enrollment	Licensure/ Certification	Student Satisfaction	Faculty Workload	
X	X	X		X			X	Alaska
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Arizona
		X		X			X	Arkansas
		X						California
X		X						Colorado
X								Connecticut
X	X	X	X	X	X	X	X	Florida
	X	X		X			X	Georgia
X		X		X				Hawaii
X	X	X		X				Idaho
X	X		X	X		X		Illinois
X								Indiana
		X		X				Kentucky
		X						Louisiana
X	X	X					X	Maine
		X	X	X		X		Maryland
X								Massachusetts
	X	X						Minnesota
X		X						Mississippi
X	X			X				Missouri
X	X	X		X	X			Nevada
	X	X						New Hampshire
X	X	X		X				New Jersey
X		X					X	New Mexico

Table B-2
Data Element Availability
(Continued)

	Entering Type	Admis-sion Status	Degree Seeking/ Non-Degree Seeking	Degree Intended	Athletic Status	Remedial Course-work	Student Course Grades	Cumulative GPA
New York	X	X	X	X		X		X
North Carolina	X		X	X		X		X
North Dakota	X			X	X	X	X	X
Ohio						X		
Oklahoma	X	X	X	X	X	X	X	X
Oregon	X	X	X			X	X	X
Pennsylvania	X		X					X
South Carolina	X	X	X	X				X
South Dakota	X	X	X	X		X	X	X
Tennessee	X	X	X	X		X		
Texas	X			X		X		X
Utah	X		X	X		X		
Vermont	X	X	X	X		X	X	X
Virginia	X		X		X	X	X	
Washington	X	X						
West Virginia	X			X	X	X	X	X
Wisconsin	X	X	X	X		X		X

Table B-2
Data Element Availability
(Continued)

Transfer Students			Student Outcomes					
Total # of Credits Earned at Prior Institutions	# of Credits Applicable to the Degree	Transfer Level	Employment/Job Placement	Post-baccalaureate Enrollment	Licensure/ Certification	Student Satisfaction	Faculty Workload	
X	X	X				X	X	New York
X		X	X	X	X	X		North Carolina
X		X		X			X	North Dakota
				X			X	Ohio
X	X	X		X			X	Oklahoma
	X	X					X	Oregon
X		X		X				Pennsylvania
								South Carolina
X		X					X	South Dakota
				X	X	X	X	Tennessee
		X		X			X	Texas
X				X		X		Utah
X		X					X	Vermont
X	X			X				Virginia
		X						Washington
X							X	West Virginia
		X					X	Wisconsin

Table B-3
Student Tracking Capabilities
(Question 6)

	Entering Freshman	Incoming Transfer Students	Students Who Begin in Terms Other Than Fall
Alaska	C	C	C
Arizona	N/A	N/A	N/A
Arkansas	C	C	
California	F	F	F
Colorado	C	C	C
Connecticut	C	C	C
Florida	C	C	C
Georgia	C	C	C
Hawaii	C	C	
Idaho	C	C	C
Illinois	C	C	C
Indiana	C	C	F
Kentucky	C	C	C
Louisiana	C	C	C
Maine	C	C	C
Maryland	C	C	
Massachusetts	C	C	C
Minnesota	C	C	C
Mississippi	C	C	C
Missouri	C	C	C
Nevada	C	C	C

Table B-3
Student Tracking Capabilities
(Continued)

	Entering Freshman	Incoming Transfer Students	Students Who Begin in Terms Other Than Fall
New Hampshire	C	C	C
New Jersey	C	C	
New Mexico	F	F	F
New York	C	C	C
North Carolina	C	C	C
North Dakota	F	F	F
Ohio	F	F	F
Oklahoma	C	C	C
Oregon	C	C	C
Pennsylvania	C	C	C
South Carolina	F	F	
South Dakota	C	C	C
Tennessee	C	C	C
Texas	C	C	C
Utah	C	C	C
Vermont	C	C	C
Virginia	C	C	C
Washington	C		C
West Virginia	C	C	C
Wisconsin	C	C	C

C = Current Capability F = Future Capability

Table B-4
Inter-Agency Data Sharing
(Question 8)

	State Dept. of Education (K-12)	Post-secondary Agencies in Other States	State Employment Records	State Corrections	Federal Training/ Employment Records	The Military	Private Sector Employers
Alaska	D		C		C	C	
Arizona							
Arkansas	C						
California	D		D				
Colorado	D	D	C				
Connecticut							
Florida	C	C	C	C	D	C	C
Georgia							
Hawaii	C						
Idaho			D				
Illinois			C				
Indiana			C				
Kentucky							
Louisiana							
Maine							
Maryland	D						
Massachusetts							
Minnesota	D		D				
Mississippi							
Missouri	D	C	C				
Nevada							
New Hampshire	D		D				
New Jersey			D				
New Mexico	D		D				
New York							

Table B-4
Inter-Agency Data Sharing
(Continued)

	State Dept. of Education (K-12)	Post-secondary Agencies in Other States	State Employment Records	State Corrections	Federal Training/ Employment Records	The Military	Private Sector Employers
North Carolina	C	D	C	C	C	C	C
North Dakota	C	D	C	D	D	D	D
Ohio							
Oklahoma	C	D	C	D	D	D	D
Oregon	D		D	D	D		
Pennsylvania							
South Carolina							
South Dakota	C	C	D			C	D
Tennessee	C						
Texas	C						
Utah	D	D	D				
Vermont							
Virginia			C				
Washington	C	D	C	C	C	C	
West Virginia							
Wisconsin							

C = Currently in Place D = In the Discussion/Planning Stage

Appendix C

State/System Contacts for Information on Data Systems

State/System Contacts for Information on Data Systems
(Survey Respondents in State Order)

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